

A Review on Phytochemical and Pharmacological Activity of *Oxalis corniculata* Linn.

Mohd. Aaftab^{1*}, Simran Gangotri², Swati Sahu³, Vijay Kumar Roy⁴, Supriya Sahu⁵

^{1*}National Institute of Pharmaceutical Science and Research, Near Gatora Railway Station Road, Farhada, Bilaspur - 495550, Chhattisgarh, India. Email: mdaafstab10897@gmail.com (Corresponding Author)

²Swami Vivekanand Institute of Pharmacy and Research, Semartal, Bilaspur - 495009, India.

Email: simrangangotri122@gmail.com

³National Institute of Pharmaceutical Science and Research, Near Gatora Railway Station Road, Farhada, Bilaspur - 495550, Chhattisgarh, India. Email: sahuswati180@gmail.com

⁴Sanjivani Institute of Pharmacy, Ganiyari, Bilaspur, C.G. - 495330. Email: vijayroy25alkem@gmail.com

⁵Dr. C.V. Raman Institute of Pharmacy, Dr. C.V. Raman University, Kargi Road, Kota, Bilaspur, Chhattisgarh - 495113. Email: supriya2332sahu@gmail.com

ABSTRACT

Oxalis corniculata Linn is a highly potent traditional medicinal plant that is widespread in tropical and subtropical regions of the world and is commonly known as woody climbing tamarind and belongs to the Oxalidaceae family. Human Disease, this overview shows different areas of previously isolated plant molecules, such as flavonoids, alkaloids, tannins, steroids, polyphenols, glycosidic compounds, lipids and volatile oils. It contains pharmaceutical substances such as isovitexin, flavonoids and the glycopyrunside Vitexin2ObetaD. It is a rich source of essential fatty acids like palmitic, oleic, linolenic and stearic acids, it has some important pharmacological properties like healing, anti-diarrhea, anti-cancer, anti-implantation and abortion. resistant, bacteriostatic, anti-inflammatory. This review article briefly describes the botanical properties, the ethnopharmacological use, the pharmacological properties and the phytochemical composition of this medicinal plant and document the most important. Information on the various aspects of *Oxalis corniculata* and highlights research and development needs.

Keywords: *Oxalis corniculata*, Ethnopharmacological, Oxalidaceae, Phytochemical

How to cite this article: Aaftab M, Gangotri S, Sahu S, Roy VK, Sahu S. A Review on Phytochemical and Pharmacological Activity of *Oxalis corniculata* Linn. Int J Drug Deliv Technol. 2026;16(21s): 665-673. DOI: 10.25258/ijddt.16.21s.69

Source of support: Nil.

Conflict of interest: None

INTRODUCTION:

A large number of modern medicines have been derived from natural resources. There is so much knowledge, information, and benefits of herbal medicine in our ancient Ayurvedic and medical literature by Unani. Charaka Samhita is one of the ancient Indian medicinal treatises (1000 BC) that reports the use of more than 2000 herbs for medicinal purposes.[1] The study of the chemical components of plants and pharmacological research can form the basis for the growth of mycelium to develop new active substances. In addition, herbs have provided us with some very important lifesaving medicines that are used in the arms of modern medicine.[2] There is a widespread belief that medicinal herbs are safer and less harmful to the human body than synthetic drugs, which is why laboratories around the world are testing plants for biological activity with

therapeutic potential. Therapeutic benefits the Traditional Indian medical system uses medicinal herbs to treat various ailments. The herbal system of traditional medicine plays an important role in health care, as around 80% of the world's population mainly rely on ethnopharmaceuticals for basic therapeutic purposes, and a significant part of the population relies on traditional medicine due to the scarcity and high cost of the traditional one Medicine. and its unpleasant side effects.[3, 4] It is believed that medicinal herbs are less toxic and safe for the human body than synthetic drugs.[5, 6] *Oxalis corniculata* Linn, widespread in Asia, Europe, America and Africa, belongs to the family Oxalidaceae, grows freely in human habitats, on roadsides, parks and squares, in almost all warmer parts of India, especially in the Himalayas at an altitude of 2500 meters. It is a common herbaceous plant. in damp and dark places. It is a well-known plant in India, and its

A Review On Phytochemical And Pharmacological Activity Of Oxalis Corniculata Linn

biological properties are known all over the world. It contains essential phytochemicals that are necessary for normal and good human health. Other alternative uses have also been reported, such as anthelmintic, anti-inflammatory, astringent, antiseptic, diuretic, antipyretic, and gastric properties. The plant is also used to treat fever, cold, cough, diarrhea, shock, urinary tract infections, and sprains. This plant contains important plant compounds such as β -carotene, vitamin C and niacin. Plant extracts are beneficial for stomach problems and jaundice. [9,10]

TAXONOMICAL CLASSIFICATION [11]

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnoliopsida

Order: Oxalidales

Family: Oxalidaceae

Genus: *Oxalis*

Species: *corniculata*

Botanical Name: *Oxalis corniculata* Linn.

VERNACULAR NAMES [11]

Sanskrit: Ambashta, Amlapatrika, Amlika, Amlotaja, Cangeri

Hindi: Seh-patti, Tinpatiya, Anboti, Bhilmori, Khatari

English: Indian sorrel

Urdu: Khatt-i-buti

Assamese: Changeritenga, Saru tengesi

Bengali: Amrul-sak, Amrul shak, Amrul, Amrool

Kannada: Huli-hunice, Hulihunice, Teltuppi

Tamil: Palaikiri, Puliyarail

Telugu: Ambotikura, Pulichintha, Pallachintha

Marathi: Ambali, Chicha

Malayalam: Poliyarala, Puliyaral, Puliyarala, Pullampurachi

Marathi: Umbuti, Ambuti, Bhinsarpati, Ambata chukaa

Oriya: Sialthur, Siakthur, Ambo chingari

Arabic: Hememdab, Homadmad

DISTRIBUTION:

A rather fragile, low-growing herb, widespread in humid and shady places, on roadsides, in plantations, meadows and in most areas in warmer parts of India, especially in the Himalayas at an altitude of 8000 feet around the world.[12] It was also distributed by ballast around the eastern port city of the United States and became widespread in Texas and Ontario. These weeds are found throughout Florida. This is a common sight in the southeastern United States. from Newfoundland to North

Dakota; and southern Mexico. *corniculata* is a common plant that is found in the Old World, as well as in the temperate and tropical regions of North, Central, South America and the West Indies.[13]

MORPHOLOGY:

For this study leafy plants were collected from Bilaspur, Chhattisgarh, India region and authenticated by the Botanist. This is a herbaceous shrub or rooted shrub 0.10.5 m long (Fig. 1). Branched from the base and usually serrated, the upper part is erect or weak, smooth or pubescent.[13]

a) Body: The body is slender, curly and serrated, from 0.4 to 1.5 cm in length. Its length varies from 4.5 to 8.5 cm. Unpleasant smell, bitter taste when fresh.[14]

b) Leaves: Leaves are opposite, three-node, lamellar, cordate, with distinct longitudinal grooves; leaflets 0.5-1 cm long, lateral veins are enlarged, the plate is smooth on the upper surface, slightly bent upward along the main vein, with a small number of hairs hanging along the veins on the lower surface and along the lower edge, folded leaves. alternately along the body. A long stem grows from the axils of the leaves, from which there are up to 3 pedicels, each stem has a flower

c) Flowers: 711 mm wide, with 5 yellow petals.[13]

d) Fruit: The fruit is a capsule, 11.5 cm long, cylindrical, with a pointed apex and 5 ridges in cross section.[13]

e) Seeds: Seeds are oval, with a rounded apex, generally pointed, flattened in cross section, light brown, with a serrated outer surface. *Oxalis corniculata* will be larger.[13]



Fig. 1 *Oxalis corniculata* Linn. plant

ETHNOBOTONIA:

In the Nepalese village of Oxalis corniculata Linn. (Jujur saang) is used as a medicinal plant.[14] Mix equal amounts of the plant with *Justicia adathoda* L. *Maesa macrophylla* leaf cocoons, ground in water, and drink about 6 teaspoons 3 times daily for stomach ailments.[15] A decoction of the leaves is used to treat fever and dysentery in parts of Madhya Pradesh.[16] Saturate the whole plant with Seda Akota leaves, which are taken by mouth to treat gonorrhoea in Cameroon.[17] The juice of the herb was used as an eye drop for conjunctivitis by the Bora tribes of Assam.[18] Residents of Tehsil Chakwal (Pakistan) used the juice to treat skin conditions, and the leaves as a cooling agent for indigestion, fever, severe headache and snakebite. Chopped fennel, drink water 3 times a day to cure dysentery. It is also used for sensitive teeth.[19]

PHYTOCHEMICALS:

Previous studies have isolated several types of phytochemical components of this medicinal plant, such as tannins, flavonoids, polyphenols, steroids, alkaloids, volatile oils, fatty acids, glycosides, etc. essential fatty acids. such as palmitic acid, linoleic acid, linolenic acid and lipids. The presence of oleic acid and oleic acid in this plant has been found in previous studies. The leaves of the plant are the main source of vitexin-20-beta-D-glucopyroside and vitexin. amino acids. In a previous study, fiber and calcium were found in methanol and ethanol plant extracts. The stems and leaves are an excellent source of citric and tartaric acids, and the stems also contain malic acid. Some parts of the plant are also

rich in vitamin C and carotene. Oxalate-rich leaves and stems taste bitter due to acidic plant compounds.[20, 21]

PHYTOCHEMICALS:

Phytochemical test for *Oxalis corniculata* Linn showing the presence of tannins, palmitic acid and a mixture of 8 oleic, linoleic and linolenic acids and lipids. Methanol and ethanol extracts of this plant showed the presence of carbohydrates, glycosides, phytosterols, phenolic compounds, flavonoids, proteins (12.5%), amino acids and volatile oils; It also shows the presence of calcium, fiber and tannin. Leaves contain tartaric and citric acids, calcium oxalate, flavonoids (acacetin and 7.4 diOMeapigenin), glycoflavones (4'OMe vitexin, 4'OMeisovitexin and 3', 4'diOMe orientin), flavanols (3', 4 'diOMe quercetin) and phenolic acids such as fhydroxybenzoic, vanillic, and injectable acids. This herb is known for its citrusy flavor due to the high oxalate content in its leaves and stems. The study showed the presence of three C-glycosylflavones in the leaves, 6C-glycosylluteolin (isorientin) and 6C-glycosylapigenin (isovitexin) and isovitexin 7-methyl ester (certisin) (Fig. 2).

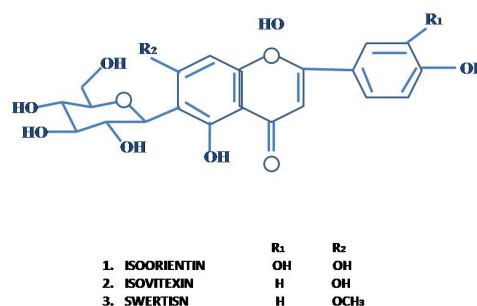


Fig. 2: The structures of flavonoids [i: luteolin 6 -c- glucoside (isorientin), 2: apigenin 6 -c- glucoside (isovitexin), 3: isovitexin 7- methylether (swertisin)] isolated from the shoots of *o. corniculata*

Ferritin was found in *Oxalis corniculata* cells, which was confirmed by X-ray microscopic analysis with electron microscopy; It occurs in immature plastids and ameloblasts as sub-crystalline aggregates with rounded edges or may be predisposed to surrounding starch granules. Stromal ferritin aggregates are a source of iron for the fetus. The leaves contain about 86% water, 0.8 fat, 8.2 carbohydrates, 150 mg calcium, 78 mg phosphorus, 8 mg iron, 0.6 mg niacin, 78 mg vitamin C, 6050 mcg beta-carotene and 712% oxalate.[22] During photosynthesis, oxalic acid is formed by fixing carbon dioxide in both

light and dark, but its photosynthetic rate is much higher in the dark. Several compounds have been characterized by nuclear magnetic resonance, infrared and mass spectrometry, such as (i) Oc1, a mixture of C24 to C28 saturated fatty acids; (ii) Oc2, a mixture of C18 to C28 long chain alcohols; and (iii) Oc3, a separate compound that is a galactoglycerolipid. [23] β -cytosterol (1), betulin (2), 4-hydroxybenzoic acid (3), ethyl gallate (4), 5-hydroxy7,8-dimethoxyflavone (5), 5-hydroxy3', 4', 6, 7, 8-pentamethoxyflavone (6), 7,5'-dimethoxy3, 5, 2'-trihydroxyflavone (7), 5-hydroxy3, 6, 7, 4'-tetramethoxyflavone (8), 4', 5-hydroxy3, 6, 7-trimethoxyflavone (9), 5-hydroxy3, 6, 7, 4'-tetramethoxyflavone (10), apigenin 7O (β D-glucoside) 11) and 3,3, 5,7-trihydroxy-4'-methoxyflavone 7O β D-glucopyranoside (12) were recently isolated from *Oxalis corniculata* (Fig. 3).[24]

Nutritional value of *Oxalis corniculata* Linn. leaves seem to be rich in minerals Content such as sodium (1.12 + 0.02%), potassium (2.17 + 0.31%), calcium (2510.08%), nitrogen (3.56 10.70%) and magnesium (0.25 + 0.03%), these minerals are important components in the regulation of various metabolic pathways. in the human body.[25]

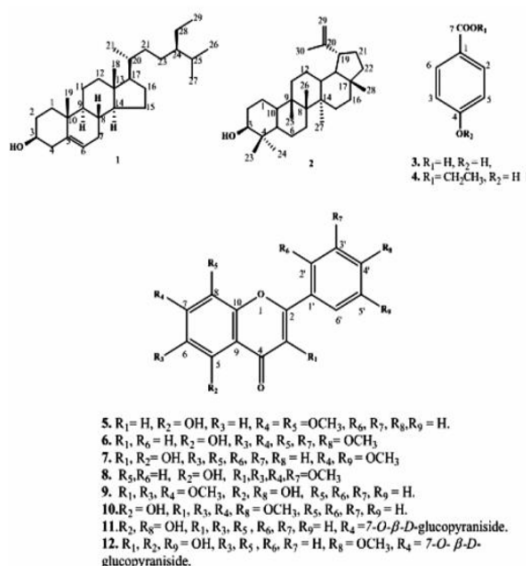


Fig. 3: Structures of Compounds 1-12 isolated from *Oxalis Corniculata* Linn.

PHARMACOLOGICAL PROPERTIES

Oxalis corniculata has demonstrated different pharmacological activity in previous studies. They are as follows:

Wound Healing Properties

Whole vegetable alcohol and petroleum ether extracts were evaluated for their wound healing activity using excision, incision and wound models. Necrotic Wounds in Animals Extracts of the whole plant *Oxalis corniculata* at doses of 300 and 500 mg per kg of body weight, respectively, showed significant activity in wound healing by increasing the rate of healing of wounds, contractures and fractures and a significant reduction in wound healing time.[26, 27]

Antidiarrheal properties

The antidiarrheal activity of the decoction and methanol of the plant was evaluated in diarrhea caused by castor oil in rats and during transit through the small intestine. At all dosages, the aqueous extract was found to be more effective than the methanol decoction. Oral doses such as 160, 320 and 640 mg / kg body weight have been shown to have antidiarrheal effects. This broth reduces the passage of coal dust through the small intestine and reduces stool moisture in castor oil diarrhea. Both decoctions prolong the onset of diarrhea and suppress bowel movements.[27]

Anticancer properties

Based on previous research, it was concluded that ethanol decoction suppressed tumor growth at sites and in solid tumor models. The ethanol decoction was evaluated for its antitumor effect on Ehrlich carcinoma in Swiss albino mice.[28, 29]

Anti-implantation and miscarriage properties

In a previous study, petroleum ether extracts and whole plant ethanol were administered orally at doses of 100 and 200 mg / kg for the first time on the seventh day. pregnancy to determine anti-implantation properties. Pregnant women who received treatment from the eighth to the fourteenth day of pregnancy showed abortive and maximal effects (78.55%) with a high dose of a mild oil decoction. All groups treated with All showed antireproliferative properties on day 10 of surgery and were optimal (76.42%). in a light oil broth.[30]

Antidiabetic properties

An earlier study showed that a decoction of the plant was tested for its ability to inhibit pancreatic novocaine amylase. Organic extracts did not show significant inhibition, it can be concluded that the biologically active compounds in the broth showed only the inhibitory

effects of amylase. In this study, an extract concentration of 100 µg / ml showed a maximum inhibition of 89.27%. [31]

The antibacterial properties

The antibacterial properties of methanol and ethanol extracts of the plant have been reported in a previous study. Methanol and ethanol extracts have shown significant antibacterial properties against *Xanthomonas* and fourteen strains of human pathogenic bacteria. The effect between partitions. In the case of human pathogenic bacteria, the administration of a methane decoction with moderately important antibacterial properties was observed compared to the standard antibiotic streptomycin. [32]

Anti-inflammatory properties

A whole-plant methanol decoction was evaluated for anti-inflammatory and antioxidant properties by in vitro methods. Aspirin has been used as a standard drug to study its anti-inflammatory properties. Anti-inflammatory studies were assessed by analysis of albumin denaturation, analysis of membrane stability and proteinase inhibitory activity at various concentrations; Based on the results, it was concluded that the broth has the ability to trap nitric oxide and DPPH radicals with IC₅₀ values of 302.93 ± 4.17 µg / ml and 73.07 ± 8.28 µg / ml, respectively. The decoction also showed anti-inflammatory properties in vitro, inhibiting thermal denaturation of the albumin protein as well as stabilizing the red blood cell membrane, and the IC₅₀ values for the study results were 288.04, respectively. ± 2.78 µg / ml and 467.14 ± 9.56 µg / ml. Proteinase activity was also noticeably inhibited by chromatography (IC₅₀ 435.28 ± 5.82 µg / ml). [33]

Anti-ulcer Properties

In one study, the anti-corrosion properties of vegetable broths and ethanol solutions were evaluated at dose levels of 200 and 400 mg/kg using a corrosive organic solvent. Release of ethanol in gastric ulcers and associated pyloric ulcers. There was a significant decrease in stomach volume, as well as a decrease with free and complete antacid decoction treatment, and catalase and SOD concentrations were increased and lipid peroxidation decreased in both decoctions. [34]

Antiepileptic action:

Methanol extract of *Oxalis corniculata* Linn. Leaves at doses of 200 and 400 mg/kg body weight were tested for

antiepileptic activity in models of maximum electroconvulsive seizures (MES) and pentylenetetrazole (PTZ) in Wistar albino rats. MES, MEOC showed a significant reduction in hind limb lengthening time at a dose of 200 mg/kg and significantly reduced efficacy at a dose of 400 mg/kg. Similar dose-dependent results were obtained in the PTZ model by delaying the onset of clonic seizures. In conclusion, our present results indicate that *L. Oxalis corniculata* has an antiepileptic effect on MES and PTZ-induced spasms and that its mechanism may be related to increased MES and PTZ. GABA receptor activity and signal transduction. [35] Study A was conducted to investigate the effects of a methanol extract of *Oxalis corniculata* Linn. The levels of the antioxidant enzymes superoxide dismutase, glutathione peroxidase, glutathione reductase, and catalase decreased in the rat brain due to seizures and recovered significantly upon administration of ethanol. *Oxalis corniculata* Linn extract. Similar dose-dependent results were also obtained in PTZ, while MEOC significantly reduced lipid peroxidation in both models. The anticonvulsant activity of MEOC may have antioxidant properties and inhibit the production of free radicals in epilepsy caused by MES and PTZ. [36]

Hypolipidemic properties:

Hyperlipidemia has been caused in animals on a high-fat diet containing coconut oil and vanaspati ghee in specific proportions at a dose level of 10 ml/kg. The decoction used showed a significant reduction in biochemical factors such as triglycerides and LDL cholesterol and MDA in the blood. In contrast, SOD, HDL, and CAT were significantly increased in the study. [37]

Anti-nociceptive action:

Ethanol extract of *Oxalis corniculata*. At doses of 200 and 400 mg/kg of body weight, its antitumor activity was assessed in rats with diabetic neuropathy. Diabetic rats showed a significant 49% reduction in tail latency in the hot water immersion test and a 40% reduction in leg retraction in the hot plate test at the end of the fifth week. [38]

Antiamoebic activity:

Oxalis corniculata Linn. Several compounds have been identified with antiaging activity in *E. histolytica* cultures. They are labeled by NMR, infrared and mass spectrometry as (1) Oc1, a mixture of saturated fatty acids from C24 to C28; (ii) Oc2, a mixture of C18 to C28 long-chain alcohols; and (3) Oc3, a compound called

A Review On Phytochemical And Pharmacological Activity Of Oxalis Corniculata Linn

galactoglycerolipid (GGL). Among the various compounds obtained, the strongest antiepidic activity was found in GGL.[39]

Anxiolytic activity:

The anxiolytic effect of the alcoholic extract of *Oxalis corniculata* Linn. (100 and 300 mg/kg) led to a significant increase in the number of hybrid seeds (control = 24.33 ± 3.48), but a significant decrease in immobility (control = 47.17 ± 4.29 s) and fecal pellets (control = $13, 50 \pm 0.96$ pellets) compared to control rats in the open field test; The number of entries (control = 53.00 ± 2.67 s) in the open arms increased significantly, but the number of entries (control = 29.33 ± 1.05 entries) and elapsed time (control = 166.7 ± 4.30 s) compared to control mice. In addition, ethanol extract of *Oxalis corniculata* (100 and 300 mg / kg) significantly reduced hassles (control = 9.50 ± 0.62 hassles) compared to control rats. This was found to be consistent with the anxiolytic effect caused by diazepam. [40]. The aim of the study was to evaluate the anxiolytic effect of the alcoholic extract of *Oxalis corniculata* Linn. (200 mg/kg and 400 mg/kg PO) in male rats using various models of anxiety. In an additionally improved maze, the extract (200 mg/kg and 400 mg/kg) showed a dose-dependent increase in the duration of use and the number of entries into the open arm compared to the control group and the brood stock increased significantly in the open field model. The treated groups showed penetrance in terms of time spent in the light compartment, the number of crossovers, and latency compared to the control group in the dark light scan test. Head depression decreased in rats treated with an alcoholic extract of *Oxalis corniculata* (200 mg/kg and 400 mg/kg).[41]

Hepatoprotective activity:

Hepatoprotective activity of aqueous and alcoholic extracts of *Oxalis corniculata* Linn leaves. (200 and 400 mg / kg) against hepatotoxicity caused by thioacetamide. Oral intake of an aqueous and ethanol extract of *Oxalis corniculata* leaves at a dose of 400 mg / kg significantly reduced SGOT (146.42 ± 2.54 and 136.75 ± 1.37 IU / L, respectively), (81.96 \pm 2) 3, 15 and 72.05 ± 2.33 IU / L), GGTP content (16.6 ± 0.49 and 15.02 ± 0.68 IU / L, respectively), ALP (241.86 ± 3.94) and 202.42 ± 5.37 IU / L, respectively) and total bilirubin (0.226 ± 0.00 mg / dL 0.288 ± 0.01 mg / dL, respectively) was less than in the active control, thioacetamide caused harm to mice. The histology of animal liver sections treated with the

extract also showed a dose-dependent decrease in necrosis.[42]

Steroidogenic activity:

Research shows that the plant *Oxalis corniculata* Linn. It has steroid activity and this natural chemical can be used safely as it does not interfere with organ function, as demonstrated by its effect on one of the endocrine organs. glands and adrenal glands function normally in the extract of treated female albino rats.[43]

Cardioprotective effects:

The present study evaluated the protective potential of an aqueous extract (*Oxalis corniculata* Linn. OCE) against isoproterenol-induced myocardial infarction in rats. Myocardial infarction in rats was induced with isoproterenol (200 mg/kg) for 24 hours for 2 days. Mice were injected with OCE as a 30-day oral pretreatment via a nasogastric tube. Isoproterenol causes a significant increase in the activity of markers of heart damage, such as creatine phosphokinase (CPK) and lactate dehydrogenase (LDH), and increases the level of lipids in the blood. Pretreatment with OCE significantly reduced serum levels of CPK, LDH, total cholesterol, and LDL cholesterol. OCE also decreased the activity of the adipogenic enzyme glucose phosphate dehydrogenase in rats treated with ISO. Isoproterenol-induced oxidative stress was significantly reduced with the administration of OCE, as evidenced by an increase in the activity of antioxidant enzymes (catalase and superoxide dismutase). and reduced concentrations of lipid peroxidation products (TBARS and conjugated denaturation). Low levels of the proteins vitamin C, sulfhydryl, and glutathione (GSH) were also increased in mice pretreated with OCE. Cardiac histopathology of OCE-treated ISO rats showed normal myocardium with little evidence of inflammatory infiltrates. Our in vitro results also confirm that OCE exhibits significant antioxidant and radical scavenging activity against DPPH radicals, superoxide, and nitric oxide.[44]

Nephrotoxicity:

CCl₄ induces oxidative stress in various tissues by altering the defense system of antioxidant enzymes. This study examined the chemical structure and protective role of *Oxalis corniculata* Linn. Methanol extract (OCME) on CC-induced nephrotoxicity in rats. The presence of flavonoids. In OCME, alkaloids, terpenoids, saponins, cardiac glycosides, flavotannins, and sterols were identified, and tannins were absent. The calculated

A Review On Phytochemical And Pharmacological Activity Of *Oxalis Corniculata* Linn

total phenol content was 7.76 ± 0.36 (mg gallic acid equivalent / g extract), while the reported total flavonoid content was 6.92 ± 0.52 (mg standard equivalent / g extract). Intraperitoneal injection of CCl₄ (1 ml / kg bw, 20% in olive oil) once a day for seven days is nephrotoxic due to increased specific concentrations of urine, erythrocytes, leukocytes, creatinine, protein, urobilinogen and nitrite. Serum creatinine, urea and urea were significantly increased, while creatinine and protein clearance levels decreased with CCl₄ treatment in kidney samples. Antioxidant enzyme activity. Lipid concentration and protein content increase with tissue damage. Processing with OCME causes significant restoring of changed parameters. It can be concluded that OCME plays a protective role against CCl₄-induced oxidative stress in mice due to the effects of antioxidant phenols.[45]

CONCLUSION:

From the above description of the current review observe, it can be said that *Oxalis corniculata* Linn. It has been used for invented purposes since ancient times which was mentioned earlier in numerous literatures as well. The study highlights the morphological uses, phytochemistry, ethnopharmacology, pharmacological properties and therapeutic application of the plant. The plant can be used as a accompanying food source for its easy availability, low cost and does not require special cultivation care. Therefore, given its full potential, it can be concluded that there is ample room for future research on *Oxalis corniculata*.

REFERANCES:-

1. Kubde M.S, Khadabadi S.S, Farooqui I.A, Deore S.L. Report and Opinion. 2010;2(12):24-31
2. Bhoomika R Goyal, Ramesh K Goyal, Anita A Mehta, Pharmacognosy Reviews 2007; 1(1): 143-150.
3. Sharma AV, Kumari A. Phytochemistry, Pharmacology and therapeutic application of *Oxalis corniculata* Linn. - A review. International Journal of Pharmacy and Pharmaceutical Science. 2014; 6(3):6-12.
4. Badwaik H, Singh MK, Thakur D. The Botany, Chemistry, Pharmacological and Therapeutic Application of *Oxalis corniculata* Linn. - a review. International Journal of Phytomedicine. 2011; 3:01-08.
5. Sukhder. Ethanotherapeutics and modern drug development. The Potential Ayurveda. Curr. Sci. 1997; 73:909-928.
6. Tanaka JCA, Silva CCD. Antibacterial activity of indole alkaloids from *Aspidosperma ramiflorum*. Braz. J. Med. Biol. Res. 2006; 39(3):387-391.
7. Lourteig A, *Oxalis* L. subgenera *Monoxalis* (Small) Lourt., *Oxalis Trifidus* Lourt. Bradea. 2000; 7:201-629.
8. Kirtikar KR, Basu BD. Indian Medicinal Plants. 3rd ed. New Delhi: MS periodical experts. 1975; 1:437.
9. Kirtikar KR, Basu BD. Indian Medicinal Plants, 1st edition. The Indian Press, Allahabad, 1988, 437-438.
10. Hussain K, Shahazad A, Hussnain ZU. An ethnobotanical survey of important wild medicinal plants of Hattar, District Haripur, Pakistan. Ethnobotanical Leaflets. 2008; 12:29-35.
11. Badwaik H, Singh MK, Thakur D. The Botany, Chemistry, Pharmacological and Therapeutic Application of *Oxalis corniculata* Linn. - a review. International Journal of Phytomedicine. 2011; 3:01-08.
12. Hemant B, Mukesh Kumar Singh, Deepa Thakur, Tapan Kumar Giri, D.K Tripathi. The Botany, Chemistry, Pharmacological and Therapeutic Application of *Oxalis Corniculata* Linn- A Review. International Journal of Phytomedicine.2011;3: 01-08
13. David W. Hall, Vernon V. Vandiver and Brent A. Sellers. Creeping Wood Sorrel, *Oxalis corniculata* L. Southern Yellow Wood Sorrel, *Oxalis florida* Salisb. SP 37, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida.1996:01-02

A Review On Phytochemical And Pharmacological Activity Of Oxalis Corniculata Linn

14. Mary Z, Vasantha kumar K.G., Saraswathy Pasupathy and Bikshapathi. T. Pharmacognostical studies on changeri *Oxalis corniculata* Linn. (oxalidaceae): Ancient Science of Life.2001;21(2);1-8
15. Sueyoshi taba.A study in ethnobotany and village economy. khaling plant names.147-169
16. Narayan P. Manandhar, Ethnobotanical note on folk-lore remedies of baglung district Nepal. CNAS journal 1993; 20(2):184-196
17. Focho D. A., Nkeng E. A. P., Lucha C. F., Ndam W, T. And Afegenui A. Ethnobotanical survey of plants used to treat diseases of the reproductive system and preliminary phytochemical screening of some species of malvaceae in Central Sub-division, Cameroon. Journal of Medicinal Plants Research 2009; 3(4): 301-314
18. Achuta Anand S, sharad srivatsava and Rawat A.K.S. An ethnobotanical study on medicinal plants of Rewa district, Madhya Pradesh. Indian Journal of Madhya Pradesh. 2010; 9(1):191-202
19. Basumatary S.K, Mahmed and Deka S.P. Some medicinal plant leaves used by boro (tribal) people of Goalpara district, Assam. Natural product radiance.2004;3(2):88-90
20. Khare CP. Indian medicinal plants: an illustrated dictionary. Springer Verlag Berlin, Heidelberg, 2007, 457.
21. Hioki M, Kaori T, Yokotani Kunijiro Y. Flavanoids in the leaves of *Oxalis Corniculata* and sequestration of the flavanoids in the wing scales of the pale grass blue butterfly *Pseudozizeeria maha*. Journal of plant research. 2008; 121:133-136.
22. Anil Kumar K. Kuntal Das, Manan Joshipura and Nishith Mandal. *Oxalis corniculata* Linn. - The Plant of Indian subtropics. Herbal Tech Industry, 2010:7-11
23. Rahmatullah Qureshi, Abdul Waheed, M. Arshad and Tallat Umbreen.Medico-ethnobotanical inventory of tehsil Chakwal, pakistan Pak. J. Bot.,2009; 41(2): 529-538.
24. Manna D, Dutta PK, Achari B, Lohia AA. Novel Galacto-Glycerolipid from *Oxalis corniculata* Kills *Entamoeba histolytica* and *Giardia lamblia*. Antimicrobial Agents and Chemotherapy. 2010; 54:4825-4832.
25. Muhammad Ibrahim, Muhammad Imran, Bakhat Aali, Abdul Malik, Nighat Afza, Muhammad Aslam, Zia Ullah and Fouzia Sultana Rehmani. Phytochemical Studies on *Oxalis corniculata*.2012 ;1-6
26. Taranalli AD, Tipare SV, Kumar S, Torgal SS. Wound healing activity of *Oxalis corniculata* whole plant extract in rats. Ind. J. Pharma. Sci. 2004; 66(4):444-446.
27. Watcho P, Nkouathio E, Telesphore B, Nguelefack SW, Albert Kamanyi. Anti diarrhoeal activity of aqueous and methanolic extracts of *Oxalis corniculata* klotzch. in rats. Cameroon Journal of experimental Biology. 2005; 01:6-49.
28. Jyothi KSN, Hemadatha P, Suresh Schalla. Evaluation of α -amylase inhibitory potential of three medicinally important traditional wild food plants in India. International Journal of green pharmacy, 2011, 95-99.
29. Kathiriya A, Das K, Kumar EP, Mathai KB. Evaluation of antitumor and antioxidant activity of *Oxalis corniculata* linn. Against Ehrlich ascites carcinoma on mice. Iranian journal of cancer prevention. 2010; 4:157-165.
30. Sharangouda K, Patil SB. Anti-implantation and abortifacient activities of *Oxalis corniculata* in albino rats. Nigerian J of Natural Products and Medicine. 2007; 11:58-60.
31. Sharma AV, Kumari A. Phytochemistry, Pharmacology and therapeutic application of *Oxalis corniculata* Linn. - A review. International Journal of Pharmacy and Pharmaceutical Science. 2014; 6(3):6-

A Review On Phytochemical And Pharmacological Activity Of *Oxalis Corniculata* Linn

32. Raghvendra MP, Satish S, Raveesha KA. Phytochemical analysis and antibacterial activity of *Oxalis Corniculata*, a known medicinal plant. My Science. 2006; 1:72-78.
33. Sakat SS, Juvekar AR, Gamphire MN. *In vitro* anti-oxidant and anti-inflammatory activity of methanolic extract of *Oxalis corniculata* Linn. International Journal of Pharmacy and Pharmaceutical Sciences. 2010; 2(1):146-155.
34. Mahadik VJ, Patil SB, Naikwade NS. Evaluation of anti-ulcer activity aqueous and methanolic extract of *Oxalis corniculata* leaf in experimental rats. International Journal of Pharmaceutical Research and Development. 2011; 3 (10):98-104.
35. Senthil Kumar K.Kand Raj Kapoor B .Study on phytochemical profile and anti-epileptic activity of *oxalis corniculata* linn. International Journal of Biological & Pharmaceutical Research. 2010; 1:34-37
36. Senthil Kumar K.K and Raj Kapoor B. Effect of *oxalis corniculata* linn. extracts on antioxidant enzymes levels in rat brain after induction of seizures by MES and PTZ International Journal of Biopharmaceutics. 2010; 1(2): 58-61.
37. Tassa BD, Gogoi G, Das S. A comparative study of the hypolipidaemic and antioxidant activities of ethanolic extracts of leaves of *Phlogacanthus thyrsoiflorus*, *Oxalis corniculata* Linn. and *Fragaria vesca* in albino rats. Asian Journal of Pharmaceutical and Biological Research. 2012; 2(1):12-18
38. Kathiriya A, Das K, Kumar EP, Mathai KB. Evaluation of antitumor and antioxidant activity of *Oxalis corniculata* Linn. against ehrlich ascites carcinoma on mice. Iranian journal of cancer prevention 2010; 4: 157-165
39. Rahmatullah Qureshi, Abdul Waheed, M. Arshad and Tallat Umbreen. Medico-ethnobotanical inventory of tehsil Chakwal, pakistan Pak. J. Bot.,2009; 41(2): 529-538.
40. Gaurav Gupta, Imran Kazmi, Muhammad Afzal, Firoz Anwar. Anxiolytic effect of *Oxalis corniculata* (Oxalidaceae) in mice. Asian pacific journal of tropical biomedicine. 2012
41. Sai Sampath. T, Santosh. P, Mangala Lahkar, Ajaygodwin. P, Pavan kumar. S and Linges. Anxiolytic effect of ethanolic extract of *Oxalis corniculata* in mice. International Journal of Pharma and Bio Sciences.2011;2(3);281-290
42. Kuntal Das, Anil Kumar Kathiriya, Kumar E. P., Benson M.K., John Wilking Einstein. Evaluation of hepatoprotective activity of aqueous and ethanolic extract of *Oxalis corniculata* against intoxication of thioacetamide induced rats.2012; 22(2): 412-417
43. Seraphim ER, Sinha MP. Impact of phytoestrogens on endocrine glands of albino rats II. Adrenal. The Bioscan. 2010; 5(1):63–66.
44. Abhilash P.A, Nilasha, Prathapan A, Suresh V. Nampoothiri, Lizocherian O, Sunitha T.K, Raghu K.G. Cardio protective effects of aqueous extract of *Oxalis corniculata* in experimental myocardial infarction. Experimental and Toxicological Pathway.2011; 63:535-540
45. Muhammad Rashid, Hina Zehra. Amelioration of CCl4-induced nephrotoxicity by *Oxalis corniculata* in rats. Experimental and toxicological pathway 2011.